

REMARKS

Claims 1-20 are pending in this application. Attached hereto is a complete listing of all claims in the application, with their current status listed parenthetically. By this Response, claim 14 has been amended. The amendment to claim 14 has been drafted to impart precision into the claim by more particularly pointing out the invention. The claim amendment has not been drafted to overcome any prior art.

Rejection Under 35 U.S.C. § 112, 1st paragraph

In the Response to Arguments section, the Examiner maintains the rejection of claims 1-20 under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. Specifically, the Examiner states:

". . .how do you implement UWB network [sic] employing TDMA frames. The mere term "could develop" doesn't make it possible to develop ultra wide band network employing TDMA frames."

Applicant respectfully traverses this maintained rejection, and asserts that, in fact, claims 1-20 are enabled by the originally-filed specification.

For example, FIG. 1 of the originally-filed specification is described as "a block diagram of an illustrative network system which employs unguided media suitable for use with the protocol of the present invention." FIG. 1 shows a master 12 and several exemplary slave devices 14a-n, which are illustrated communicating via wireless communication signals. FIG. 2 of the originally-filed specification is described as "a Time Division Multiple Access protocol frame definition in accordance with the present invention." FIG. 2, as well as FIGS. 3a and 3b depict the specific, detailed construction of the Time Division Multiple Access (TDMA) protocol

frame definition. In addition, most of the originally-filed specification describes in detail the construction and operation of the TDMA protocol.

Applicant submits that the illustrative network of master and slave devices shown in FIG. 1 employ ultra wide band signals to wirelessly communicate using the TDMA frame, or protocol shown in FIGS. 2-3b, and described in detail in the specification.

Specifically, there are many means known in the art for wirelessly transmitting data. "A patent need not teach, and preferably omits, what is well known in the art." M.P.E.P. 2164.01. Ultra wide band technology is a technology that is well known in the art of communications. Attached in Exhibit A of Applicant's March 18, 2005 Response is "A Brief History of UWB Communications," which discloses that by 1989 (11 years before Applicant's priority date), Sperry Corporation had been awarded over 50 patents, and ultra wide band (UWB) had been in development for nearly 30 years (page 2, 1st paragraph). Thus, as of Applicant's priority date, UWB had been in development for at least 40 years.

"As long as the specification discloses at least one method for making and using the claimed invention that bears a reasonable correlation to the entire scope of the claim, then the enablement requirement of 35 U.S.C. § 112 is satisfied." M.P.E.P. 2164.01(b).

A comparison between the specification and claims 1-20 reveals that Applicant is claiming what is disclosed in the originally-filed specification. "The amount of guidance or direction needed to enable the invention is inversely related to the amount of knowledge in the state of the art as well as the predictability in the art. . . **A single embodiment may provide broad enablement in cases involving predictable factors, such as mechanical or electrical elements.**" M.P.E.P. 2164.03. Applicant's invention is in the realm of the electrical arts, and thus is a case which involves predictable factors.

Moreover, a case recently-decided by the Court of Appeals for the Federal Circuit (CAFC) (*Falko-Gunter Falkner et al. v. Stephen C. Inglis et al.*, No. 05-1324 (May, 26, 2006)) **affirmed a decision of the Board of Patent Appeals and Interferences** holding that the Inglis '04 application satisfied the enablement requirement even though "the mere fact that the experimentation may have been difficult and time consuming does not mandate a conclusion that such experimentation would have been considered 'undue'." The CAFC then repeated M.P.E.P. 2164.01: "A patent need not teach, and preferably omits, what is well known in the art."

Applicant submits that the amount of experimentation required to construct a network of master and slave devices communicating using ultra wide band signals transmitting a TDMA protocol as illustrated and described in the specification would be significantly less than the amount required in the above-cited case, of which the specification was found to be enabling.

This is because the electrical arts are considered predictable, and one skilled in the UWB art would be able to develop an ultra wide band network employing TDMA frames or protocol using Applicant's disclosure. The ultra wide band signals used to transmit the TDMA frame are generated by an ultra wide band transmitter, which have been in existence for 40 years. For example, ultra wide band transmitters are disclosed in several references cited by the Examiner, as well as references listed in Applicant's Information Disclosure Statement.

In view of the above discussion, Applicant submits that claims 1-20 are enabled, and thus respectfully requests the Examiner to reconsider and withdraw this rejection.

Rejection Under 35 U.S.C. § 101

In paragraphs 3 and 4 of the Office Action, the Examiner rejects claims 1, 9, 14 and 20 under 35 U.S.C. § 101, because the invention is directed to non-statutory subject matter. Specifically, the Examiner rejects claims 1, 9 and 20, cites the Interim Guideline for

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and states:

"the claims seek patent protection of a signal. Moreover, it does not appear that claims reciting a multiplicity of ultra wide band signal [sic] encoded with functional descriptive material falls within any of the categories of patentable subject matter set forth in § 101."

Regarding claim 14, the Examiner rejects the claim, cites the Interim Guideline, and states:

"the claims [sic] seek for patent protection of a signal. Moreover, it does not appear that claims reciting a multiplicity of ultra wide band signal [sic] encoded with functional descriptive material falls within any of the categories of patentable subject matter set forth in § 101. In addition, according to ANNEX IV-Computer Readable Nonstatutory Subject Matter section of the Interim Guideline for Examination of Patent Applications for Patent Subject Matter Eligibility, the computer program is not embodied or encoded on a computer read-able medium."

As discussed below, Applicant respectfully traverses this rejection.

Applicant amends claim 14 to now positively recite that the computer program is embodied on a computer read-able medium. Specifically, claim 14 now recites, in part: "A computer program product located on a computer readable medium for scheduling the assignment of variable length data slots in a network system. . ."

Regarding claims 1, 9 and 20, Applicant is claiming a Network comprised of devices (master, slaves) that communicate by using ultra wide band signals transmitted according to a specific TDMA structure. That is, claims 1, 9 and 20 are not directed to a computer program product, but instead, claim a network of communication devices, which is a machine, and machines are one of the enumerated statutory invention categories defined in 35 U.S.C. § 101 (see Interim Guideline, sect. IV, part B).

In view of the above, Applicant respectfully requests that the Examiner reconsider and withdraw this rejection.

Rejection Under 35 U.S.C. § 103

In paragraphs 9 and 10 of the Office Action, claims 1-4 9, 14 and 20 stand rejected as unpatentable under 35 U.S.C. § 103(a) over U.S. Patent 6,275,544 ("Aiello"), in view of U.S. Patent 6,347,084 ("Hulyalkar"). Applicant respectfully traverses this rejection.

In response to Applicant's Pre-Appeal Request for Review (filed 08/26/05), the Notice of Panel Decision indicates a conference was held, and a decision to withdraw the outstanding rejection and issue a new Office Action was agreed. On December 14, 2005 a conversation with the Examiner was conducted and the Panel Decision was discussed. Specifically, the Panel agreed to drop the Section 103 rejection, and maintain the Section 112 rejection.

Now, the Examiner cites new art, and revives the Section 103 rejection, but continues with the same reasoning that was rejected by the Panel. That is, the Examiner attempts to combine two references, but in the same improper fashion as before. Specifically, any attempted mixing of the two references results in an inoperable combination.

A. The Law of Obviousness

In order to establish a *prima facie* case of obviousness, three basic criteria must be met:

"First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined), must teach or suggest all of the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on the applicant's disclosure." M.P.E.P. § 2142.

As mentioned above, in order to establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings, and there must be a reasonable expectation of success. These requirements will be discussed below:

I. No motivation to combine references

Aiello teaches ultra-wideband, or impulse radio communication, which uses discrete electromagnetic pulses that may occupy bandwidths spanning several Giga Hertz. "[D]ata is transmitted via impulses having 100 picosecond risetime and 200 picosecond width, which corresponds to a bandwidth of between about 2.5 GHz and about 5 GHz" (col. 7, lines 14-17).

In contrast, Hulyalkar teaches conventional communication through specific, assigned radio frequency channels. That is, Hulyalkar employs conventional carrier wave technology, which emits a continuous waveform at a specific, narrow frequency. The communications channels taught in Hulyalkar are IEEE 802.11 or IEEE 1394 protocols (col. 2, lines 66-67, and col. 3, lines 1-3). IEEE 802.11 is a protocol for wireless LANs, and IEEE 1394 is a protocol for high-speed serial buses. Both the IEEE 802.11 and IEEE 1394 protocols use conventional narrowband signals (802.11 uses a 5 MHz wide signal), which have durations that may range from seconds to minutes.

In summary, Aiello teaches ultra-wideband technology, and Hulyalkar teaches conventional carrier wave technology. These are completely different communication technologies, and thus there is no motivation to combine these references.

II. No reasonable expectation of success.

The second prong of a *prima facie* case of obviousness requires a reasonable expectation of success. However, according to M.P.E.P. § 2142.01 "if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious."

The Examiner proposes to combine Aiello with Hulyalkar. As discussed above, Hulyalkar employs conventional carrier wave technology that emits a continuous waveform at a specific, narrow frequency. In contrast, Aiello teaches ultra-wideband, or impulse radio technology that emits discrete electromagnetic pulses that span several Giga Hertz of frequency.

Clearly, a fundamental change to Aiello's principle of operation is required for the Examiner's proposed combination to operate, and thus there is no reasonable expectation of success.

In view of the above discussion, Applicant respectfully submits that the Section 103 rejection of claims 1, 9, 14 and 20 has been traversed. Because claims 2-4 depend from claim 1, it is respectfully submitted that the rejection of claims 2-4 have been traversed by virtue of their dependency from claim 1. M.P.E.P. § 2143.03.


Conclusion

Applicant believes that this Response has addressed all items in the Office Action and now places the application in condition for allowance. Accordingly, favorable reconsideration and allowance of claims 1-20 at an early date is solicited. Authorization to charge the fee for a one-month extension of time to our Deposit Account No. 50-3143, in the name of Pulse-Link, accompanies this Response. Should any issues remain unresolved, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

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Date



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